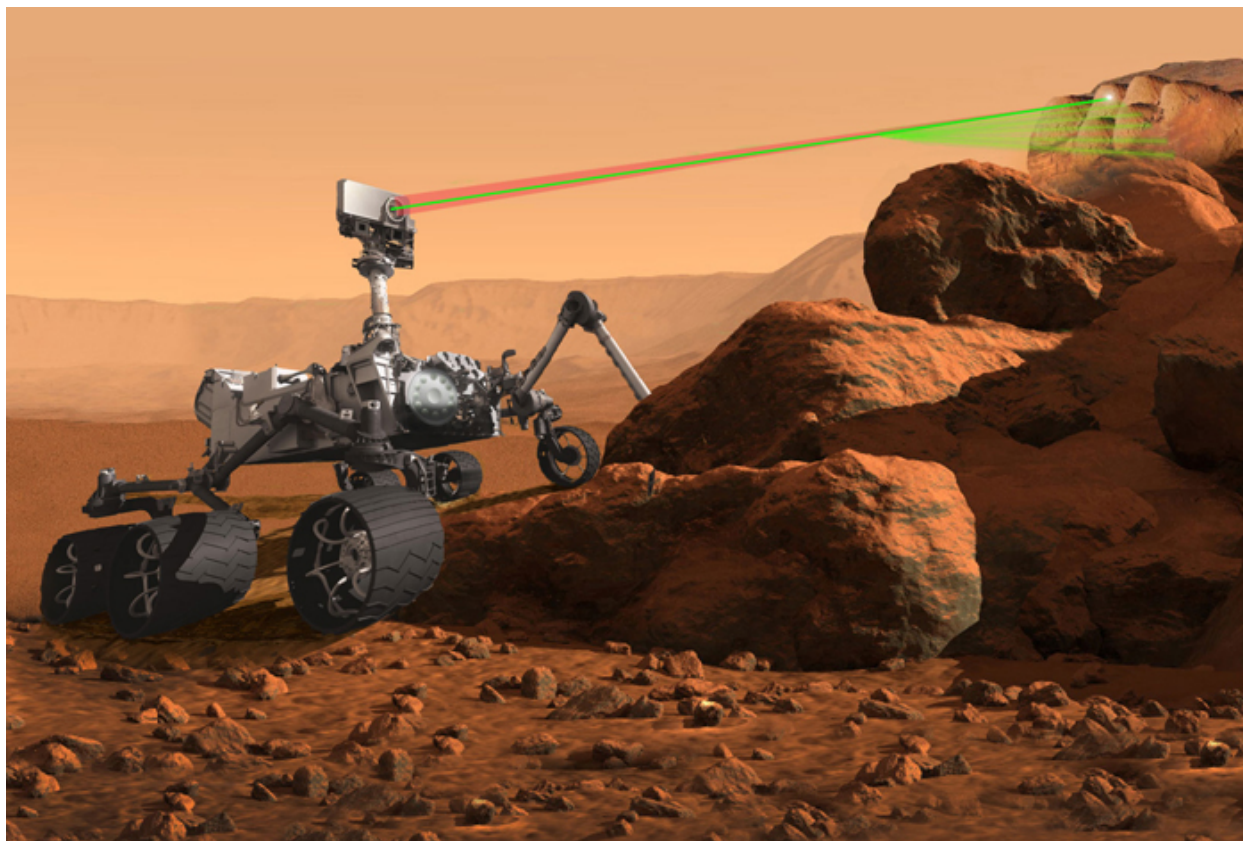


# New Mexico to Mars

September 1, 2014



An advanced laser remote-sensing instrument proposed by Los Alamos National Laboratory was recently selected to support NASA's new Mars mission in 2020. "SuperCam" will allow researchers to sample rocks and other targets from a distance and builds on the successful ChemCam technology used aboard the Curiosity Rover during NASA's current mission to Mars.

"We are extremely excited to be going to Mars again," Los Alamos National Laboratory planetary scientist Roger Wiens, principal investigator of the SuperCam and ChemCam team, said. "More importantly, I know SuperCam is the very best remote sensor that NASA can have aboard."

SuperCam won its spot on NASA's 2020 Mars mission after competing with 57 other proposals from researchers and engineers worldwide. Proposals received were twice the usual number submitted for recent instrument competitions.

Since the Curiosity Rover landed on Mars on August 6, 2012, ChemCam has been investigating whether rocks and soils on Mars contain the chemicals necessary for life

and has found signs of flowing water in the red planet's distant past. "Mars was much more hospitable 3.8 to 4.4 billion years ago," Wiens noted. "The water in the basin Curiosity is exploring had a normal pH and would have been drinkable."

SuperCam will offer several advantages over ChemCam, such as adding color to its high-resolution images and offering visible and infrared spectroscopy, which provides information on the mineral content of Mars' rocks and soils, complementing the chemical information ChemCam currently provides. An additional technique, Raman spectroscopy, will offer mineral data as well as search for organic materials.

The Raman will be facilitated by periodically converting SuperCam's infrared laser beam into a green one. In doing so, Wiens joked, "SuperCam perfectly addresses the New Mexico state question—'red or green?'—not with chile but with laser beams."

The SuperCam advances are the result of an ongoing collaboration between Los Alamos and the IRAP (Institut de Recherche en Astrophysique et Planétologie) research institution in Toulouse, France, with additional expertise contributed by the University of Hawaii and the University of Valladolid in Spain.

Los Alamos also will build the detector electronics for another instrument joining the 2020 voyage to Mars. SHERLOC, which stands for Scanning Habitable Environments with Raman and Luminescence for Organics and Chemicals, will use Raman spectroscopy to investigate very fine details of key samples from its position on the arm of the new rover.

To learn more about ChemCam (and by extension the upcoming SuperCam), you might enjoy watching the [A LANL Scientist's Dream Takes Off to Zap Rocks on Mars](#) video on YouTube, which showcases Roger Wiens and his interests in instrument research and Mars.

YouTube's [Los Alamos ChemCam Team Update October 2012](#) video relives the ChemCam team's experience during the entry, descent and landing of Curiosity on Mars.

**Los Alamos National Laboratory**

**[www.lanl.gov](http://www.lanl.gov)**

**(505) 667-7000**

**Los Alamos, NM**

Operated by Los Alamos National Security, LLC for the Department of Energy's NNSA

